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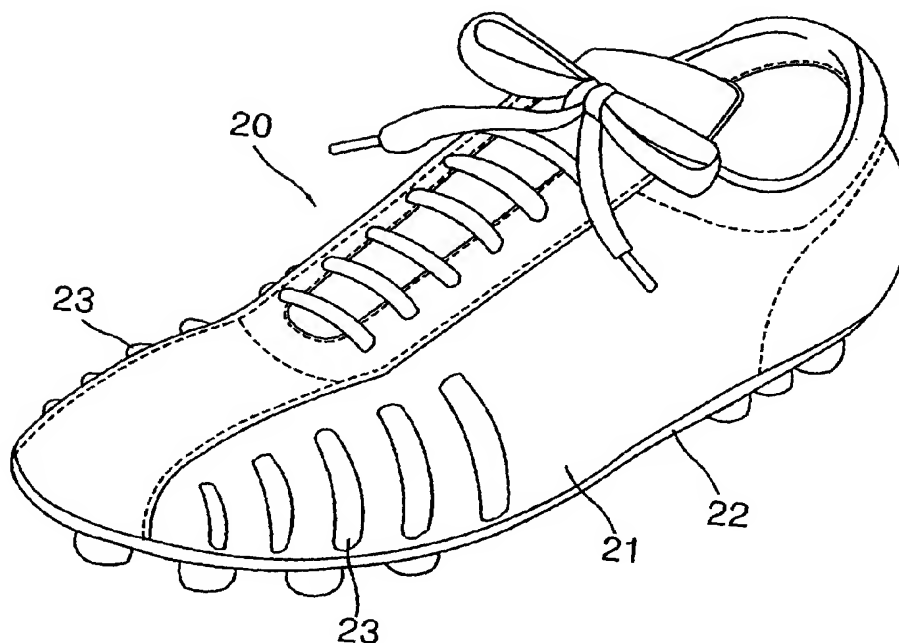
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(54) Title: SOCCER SHOE WITH IMPROVED SPINNING POWER AND SPEED



(57) Abstract: A soccer shoe improving the spin of a ball is provided. The soccer shoe comprises a sole and a shoe upper, and includes thereon a plurality of protrusions formed on an inner side area of a toe portion and an outer side area of the toe portion, each protrusion embedding therein an elastic wedge-shaped object, to thereby increase a spinning power of a soccer ball.



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## SOCCKER SHOE WITH IMPROVED SPINNING POWER AND SPEED

### TECHNICAL FIELD

The present invention relates to a soccer shoe, and more particularly, to a soccer shoe capable of improving the spin and curve of a ball by forming protrusions on the shoe upper thereon contacting with the ball.

### BACKGROUND ART

Soccer is a kind of sports that most of shooting, dribbling and passing are made by foot. Therefore, shoes that players wear play especially high role in performance of the players.

That is, when a player makes a dribble oneself, makes a pass to a teammate or makes a shooting, it is often beneficial to give more spin to a ball when kicked, thereby creating more swerve or arc to the flight of the ball. Especially when a player tries passing, centering or shooting, swerve of the ball makes them easier, more accurate and even more workable. For instance, if a player makes the ball swerve, the ball may arc past opposing players on its way to an opposing player's goal.

However, it is not easy for a player to make the ball make an acute curve. In order to make the ball curve, the

player often strikes the ball with the foot distorted, which sometimes causes the kick to be inaccurate or even causes the ankle to break. In fact, the accuracy of the ball depends not only on the kicking skill of a player, e.g., the angle and speed of the impact of the soccer shoe but also on the surface quality of the shoe and the sewed sewing thread and stitches thereon. Considering most of the shoe upper is made of natural leather, the sewing thread thereon is a key factor affecting the surface quality of the soccer shoe. Therefore, in order to minimize the delicate effect of sewing thread, the thickness of the sewing thread and the direction of the sewing are carefully determined as in manufacturing the soccer shoe.

Referring to Fig. 1, there is shown an external view of a conventional soccer shoe. As can be seen from Fig. 1, plain thread 12 is sewed on the smooth and flat surfaces 11 of the conventional soccer shoe 10. Though the sewed thread 12 might slightly contribute to preventing the ball from slipping on the surface 11, it may not be sufficient for the thread to contribute to making the ball spin and curve.

#### DISCLOSURE OF INVENTION

It is, therefore, an object of the present invention to provide a soccer shoe capable of improving the spin and curve of a ball by forming protrusions on the shoe upper contacting with the ball.

According to the present invention, there is provided a soccer shoe comprising a sole and a shoe upper, characterized in that a plurality of protrusions are formed on an inner side area of a toe portion and an outer side area of the toe portion, each protrusion embedding therein an elastic wedge-shaped object, to thereby increase a spin power of a soccer ball.

#### BRIEF DESCRIPTION OF DRAWINGS

The above and other objects and features of the present invention will become apparent from the following description of preferred embodiment given in connection with the accompanying drawings, in which:

Fig. 1 shows an exterior view of a conventional soccer shoe;

Fig. 2 illustrates an exterior view of an inventive soccer shoe;

Fig. 3 depicts a magnified view of cross section of one side of the shoe upper of the inventive soccer shoe;

Fig. 4 presents a one-body type ridge-shaped object in accordance with another preferred embodiment of the present invention;

Fig. 5 represents a one-body type ridge-shaped object in accordance with another preferred embodiment of the present invention;

Fig. 6 represents a one-body type ridge-shaped object

in accordance with another preferred embodiment of the present invention; and

Fig. 7 gives a soccer shoe with biased protrusions in accordance with another preferred embodiment of the present invention.

#### MODES FOR CARRYING OUT THE INVENTION

Hereinafter, preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings.

Fig. 2 illustrates an exterior view of an inventive soccer shoe. Fig. 3 depicts a magnified view of cross section of one side the inventive soccer shoe.

The inventive shoe 20 has a shoe upper 21 and a sole 22. On the shoe upper 21, protrusions 23 are formed in almost parallel in step-like pattern. The protrusions 23 are formed at locations where players most often use their foot for handling and kicking a ball, i.e., the inner and outer side area of the toe portion of the shoe upper 21. The protrusions 23 are formed for the purpose of improving the spin, curve and speed of the ball. In order to efficiently achieve these goals, the cross section of each protrusion 23 is wedge-shaped as shown in Fig. 3. The wedge-shaped protrusions 23 give elasticity to the surface of the shoe upper 21 the instant when the shoe 20 impacts a ball.

In shaping the protrusions 23, a long narrow wedge-

shaped object 24 is inserted within each protrusion 23. The inserted object 24 is preferably made of rather rigid but elastic material, e.g., natural rubber, synthetic rubber, plastic, silicone sponge rubber, compressed sponge rubber, polymer or the like.

The protrusions 23 may be formed by a series of process: firstly, attaching several wedge-shaped objects 24 to the inner layer 26 of the shoe upper in parallel as shown in Fig. 2; secondly, tightly covering up the wedge-shaped objects 24 with an outer layer 25; and finally, sewing the edge of each protrusion 23 thereby shaping the protrusions 23. For the purpose of easy manufacturing, it would be advantageous to attach each wedge-shaped objects 24 on one fabric or scrim and attach the fabric or scrim to the shoe upper 21 rather than directly attach each wedge-shaped object 24 individually on the shoe upper 21. Alternatively, the wedge-shaped object 24 may be attached to the inner layer 26 of the soccer shoe 20.

Rather than each protrusion 23 is in a long and narrow stripe shape, it may be formed like an island on the shoe upper 21. In other words, each protrusion is in a rectangular or a square shape for a plane view and a plurality of those protrusions may be formed about on the surface of the shoe upper 21.

The protrusions 23 are preferably formed tilted toward the toe as shown in Fig. 3. On the other hand, though not shown, the direction of the tilt may be toward the rear of

the shoe. The angle of the tilt is preferably 20 to 60 degrees with respect to the normal line of the inner layer 26. Preferably also the space (L) between each protrusion 23 is 0.5 to 4.0 cm. In addition, the height of each protrusion 23 is gradually varied depending on the location of each protrusion so that the protrusion 23 nearest the toe is the lowest and the protrusion 23 located farthestmost the toe is highest. The height gap (H) between neighboring protrusions are preferably 0.5 to 3.0 mm. In the preferred embodiments of the present invention, although the number of protrusions may vary depending on a use or an application, it has been found that it is optimal that the number of protrusions are 5 to 6, more specifically, 6 for the inner side area of the toe portion and 5 for the outer side area of the toe portion. Although the height of each protrusion 23 is described as gradually varied depending on the location of each protrusion as described above, the height of each protrusion 23 may be identical. But, as mentioned above, the number of protrusions may vary. Therefore, the number of each side area of the toe portion may be the same, e.g., 3 to 5 for the inner side area of the toe portion and 3 to 5 for the outer side area of the toe portion.

Inventor's tests have found optimal combinations of the height of each protrusion and the width of bottom of each protrusion. Tables 1 to 4 show the results of each combination.



Table 1

Serial Number of each Protrusion	Height of Protrusion	Width of bottom of Protrusion
1	2.0 mm	5.0 mm
2	2.5 mm	6.0 mm
3	3.0 mm	7.0 mm
4	3.5 mm	8.0 mm
5	4.0 mm	9.0 mm
6	4.0 mm	9.0 mm

Table 2

Serial Number of each Protrusion	Height of Protrusion	Width of bottom of Protrusion
1	2.0 mm	5.0 mm
2	2.5 mm	6.0 mm
3	2.0 mm	7.0 mm
4	2.5 mm	8.0 mm
5	3.0 mm	9.0 mm
6	3.5 mm	9.0 mm

Table 3

Serial Number of each Protrusion	Height of Protrusion	Width of bottom of Protrusion
1	1.5 mm	5.0 mm
2	2.0 mm	6.0 mm
3	2.0 mm	7.0 mm

4	2.5 mm	8.0 mm
5	3.0 mm	9.0 mm
6	3.5 mm	9.0 mm

Table 4

Serial Number of each Protrusion	Height of Protrusion	Width of bottom of Protrusion
1	2.0 (or 3.0) mm	6.0 (or 5.0) mm
2	2.0 (or 3.0) mm	6.0 (or 5.0) mm
3	2.0 (or 3.0) mm	6.0 (or 5.0) mm
4	2.0 (or 3.0) mm	6.0 (or 5.0) mm
5	2.0 (or 3.0) mm	6.0 (or 5.0) mm
6	2.0 (or 3.0) mm	6.0 (or 5.0) mm

According to another preferred embodiment of the present invention, rather than each of the wedge-shaped objects 24 are individually inserted or attached as described above, the ridge-shaped objects 24 can be made as one body as shown in Fig. 4, Fig. 5 and Fig. 6. The cross sectional view of each ridge of the topside 42 of the one-body object 40 of Fig. 4 is in wedge shape while that of Fig. 5 is in triangular shape and that of Fig. 6 is in round shape. Bottom sides 41, 51 and 61 of the one-body objects 40, 50 and 60 firmly attached on the inner side 26 of the shoe upper 21, and then the top sides 42, 52 and 62 of the one-body objects 40, 50 and 60 are covered with the leather constituting the surface of the shoe upper 21.

Referring to Fig. 7, there is provided another

preferred embodiment of the present invention. The protrusions 23 are biased or tilted from front to rear of the soccer shoe 20 as shown in Fig. 7. Though not shown, the directions of the tilt may be reversed, that is, from rear to front of the soccer shoe 20. The directions of the tilt may depend upon a soccer player's position on the field of play. Further, the number, length and height of the protrusions can be varied depending on a soccer player's position on the field of play, e.g., an attacking player, a defensive player or a goalkeeper.

The operation and effect of the inventive shoe 20 equipped with the protrusions 23 will now be described.

The instant when a player kicks the ball to make a pass or make a shooting, the ball contacts the protrusions 23. The kicked ball attains more spin to thereby make good curves while flying since the protrusions 23 give frictions to the contacting region of the ball while the ridge of each protrusion 23 scrapes the ball.

Furthermore, the ball acquires higher flight speed because of the repulsion power of the wedge-shaped objects 24. The protrusions 23 contracts at the instant they contract the ball but soon expands thanks to the elasticity of the wedge-shaped objects 24, which in turn add to the flying power of the ball. In addition, the flight speed of the ball becomes higher since the faster is the spin of the ball, the less is the ball affected by the air resistance.

As described above, the higher speed and the better

curve of a ball when kicked give a player of game a more dynamic control of the ball, and on the other hand, hamper the opposing player the ability of prediction of the direction of the ball thereby making the soccer game more speedy and more exciting.

While the invention has been shown and described with respect to the preferred embodiment, it will be understood by the skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the invention as defined in the following claims.

What is claimed is:

1. A soccer shoe comprising a sole and a shoe upper, characterized in that a plurality of protrusions are formed on both an inner side area and an outer side area of a toe portion, each protrusion embedding therein an elastic wedge-shaped object, to thereby increase a spin power of a soccer ball.
2. The soccer shoe of claim 1, characterized in that each of said plurality of the protrusions is tilted toward front of the soccer shoe, and the height of the protrusions are gradually increasing from a protrusion at a toe side to a protrusion at a rear side of the soccer shoe.
3. The soccer shoe of claim 1 or claim 2, characterized in that the number of the protrusions is 6 for the inner side area of the toe portion and 5 for the outer side area of the toe portion.
4. A soccer shoe comprising a sole and a shoe upper, characterized in that a plurality of protrusions are formed on both an inner side area and an outer side area of a toe portion to thereby increase a spin power of a soccer ball.
5. The soccer shoe of claim 4, characterized in that each protrusion embedding therein an elastic wedge-shaped object

to thereby enhance elasticity of said each protrusion.

6. The soccer shoe of claim 4, characterized in that the direction of said each protrusion is normal to the surface of the shoe upper on which said each protrusion is formed.

7. The soccer shoe of claim 4, characterized in that the direction of said each protrusion is tilted toward the toe side of the soccer shoe.

8. The soccer shoe of claim 4, characterized in that the direction of said each protrusion is tilted toward the rear side of the soccer shoe.

9. The soccer shoe of claim 7 or claim 8, characterized in that the degree of tilt is 20 to 50 degrees.

10. The soccer shoe of claim 4, characterized in that the space between said each protrusion is 0.5 to 4.0 cm.

11. The soccer shoe of claim 4, characterized in that the height of said each protrusion is gradually varied depending on the location of said each protrusion so that a protrusion located nearest the toe side is the lowest and a protrusion located farthestmost to the toe side is highest.

12. The soccer shoe of claim 11, characterized in that a height difference between neighboring protrusions is 0.5 to

3.0 mm.

13. The soccer shoe of claim 5, characterized in that a plurality of the wedge-shaped objects constitute a one-body object so that a bottom of each wedge-shaped object is attached to one plane object.

14. The soccer shoe of claim 13, characterized in that a cross sectional view of each ridge of the one-body object is in triangular shape.

15. The soccer shoe of claim 13, characterized in that a cross sectional view of each ridge of the one-body object is round.

16. The soccer shoe of claim 4, characterized in that the numbers of the protrusions for the inner side area of the toe portion and for the outer side area of the toe portion are identical.

17. The soccer shoe of claim 4, characterized in that the number of the protrusions is 6 for the inner side area of the toe portion and 5 for the outer side area of the toe portion.

18. The soccer shoe of claim 4, characterized in that the shape of each protrusion is rectangular or square and a plurality of protrusions are formed about on the inner side

area of the toe portion and the outer side area of the toe portion.

19. The soccer shoe of claim 4, characterized in that the height of said each protrusion is identical to each other.

20. The soccer shoe of claim 4, characterized in that said each protrusion is an elastic wedge-shaped object.



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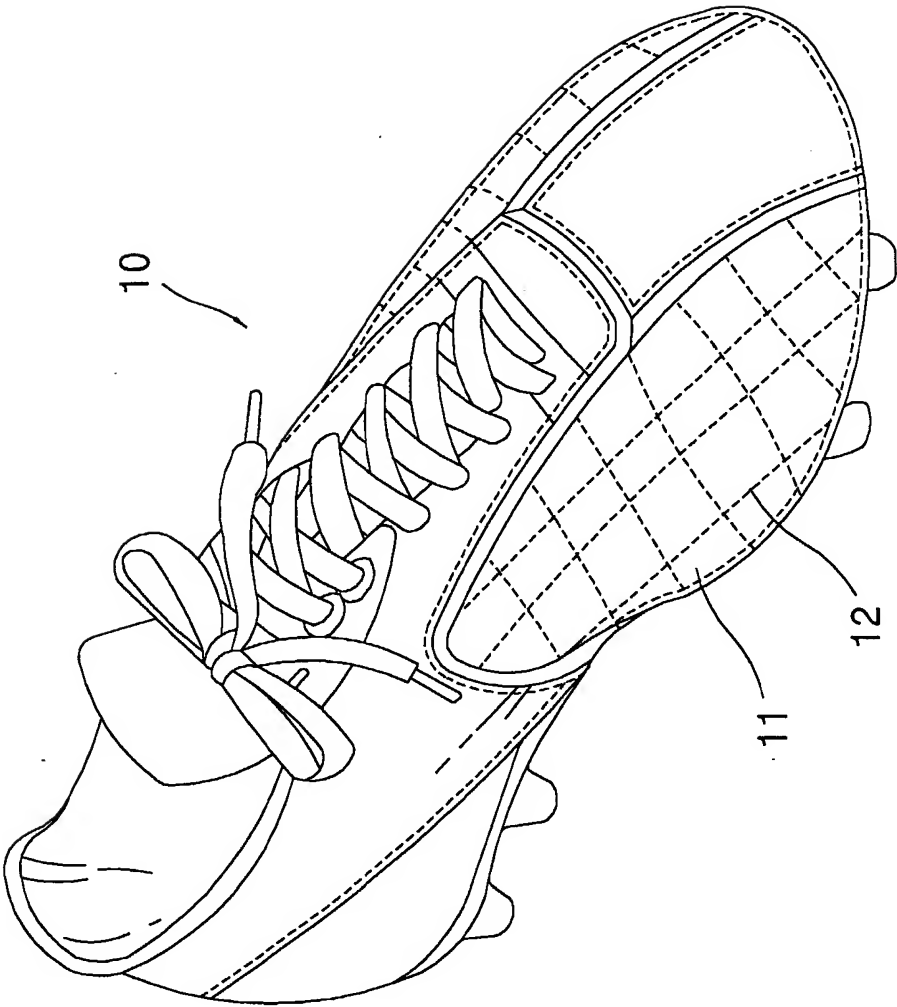


FIG.1

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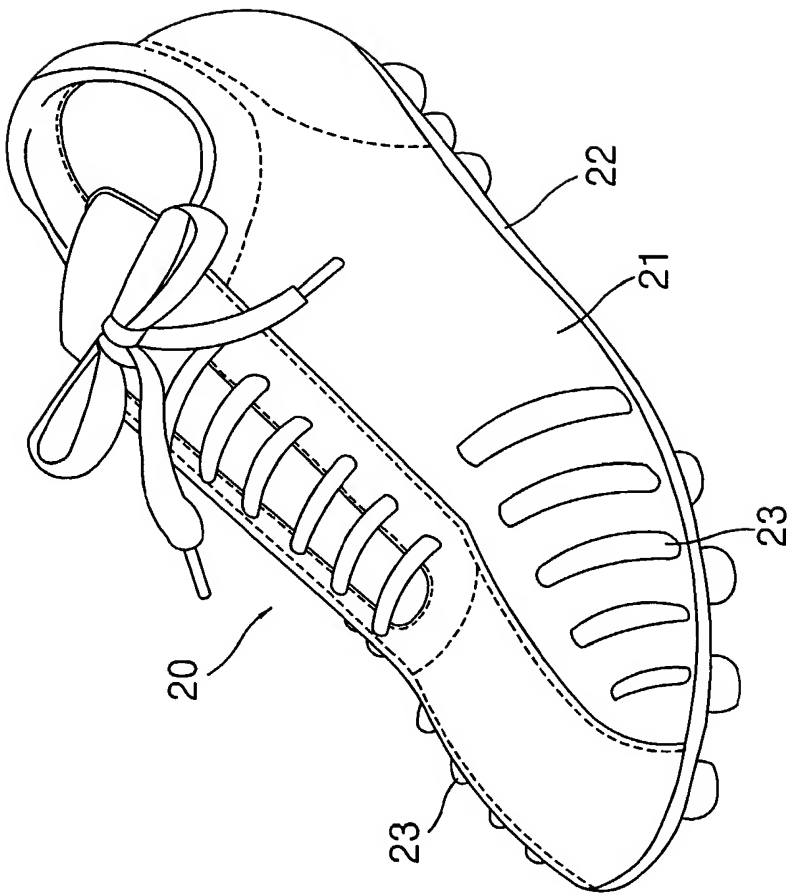


FIG. 2

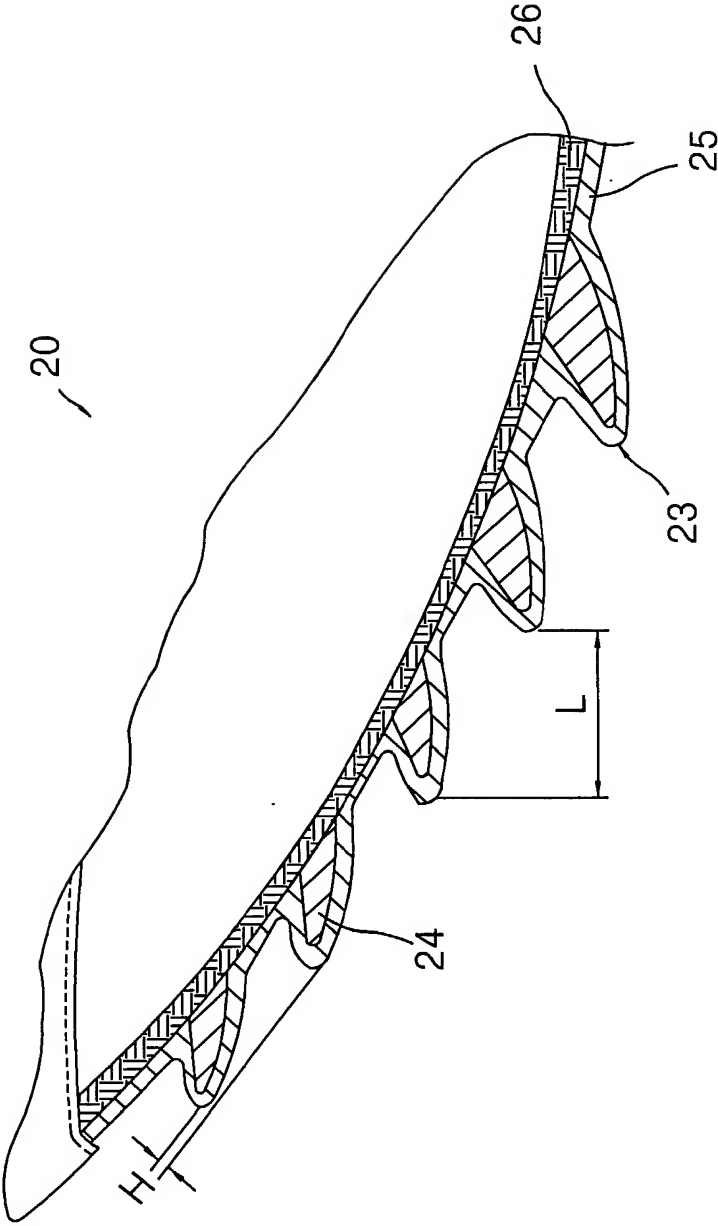


FIG.3

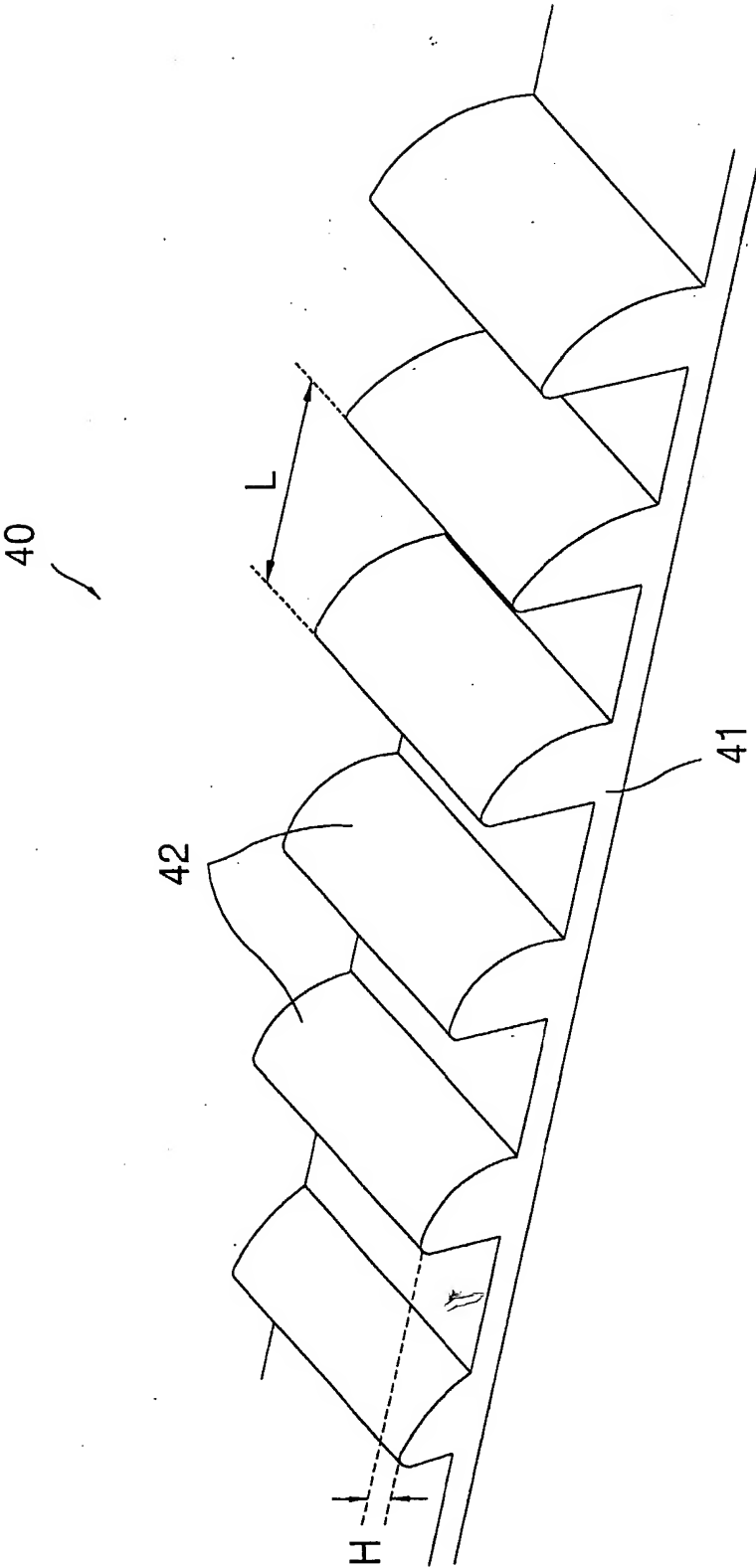


FIG.4

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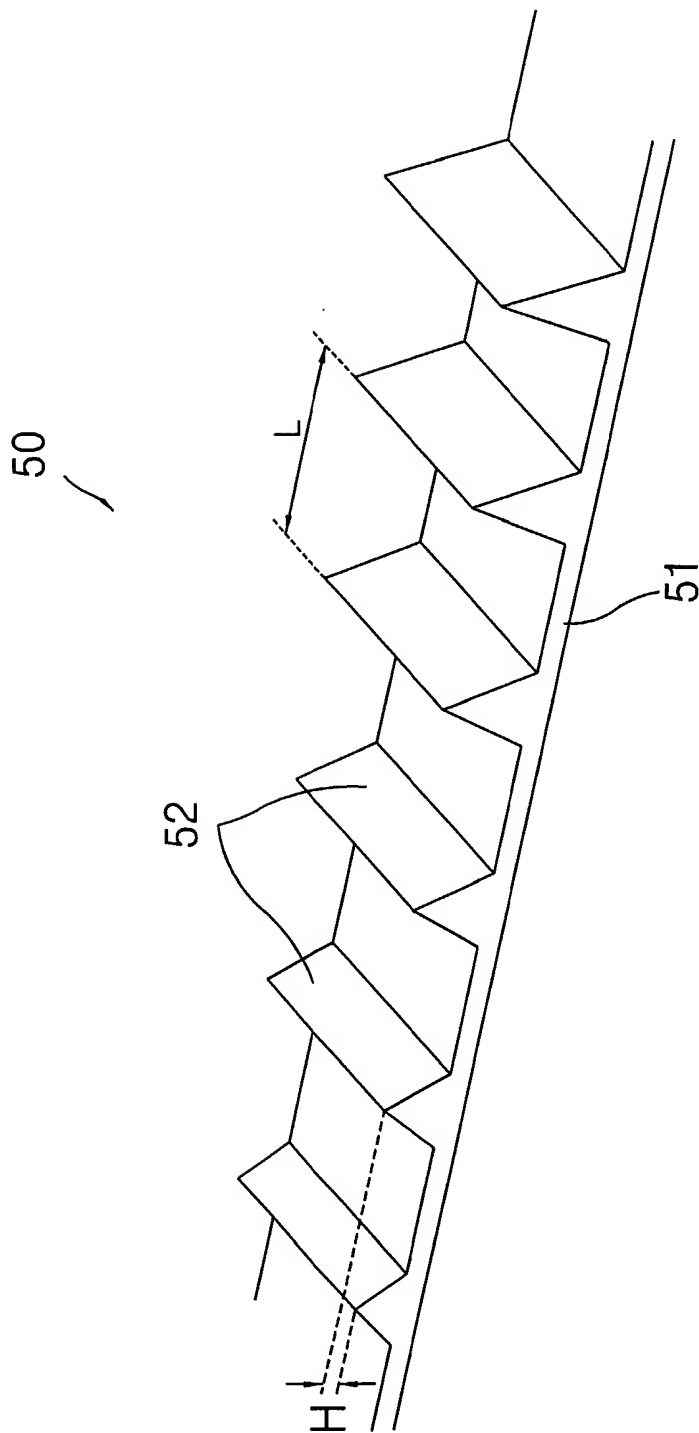


FIG. 5

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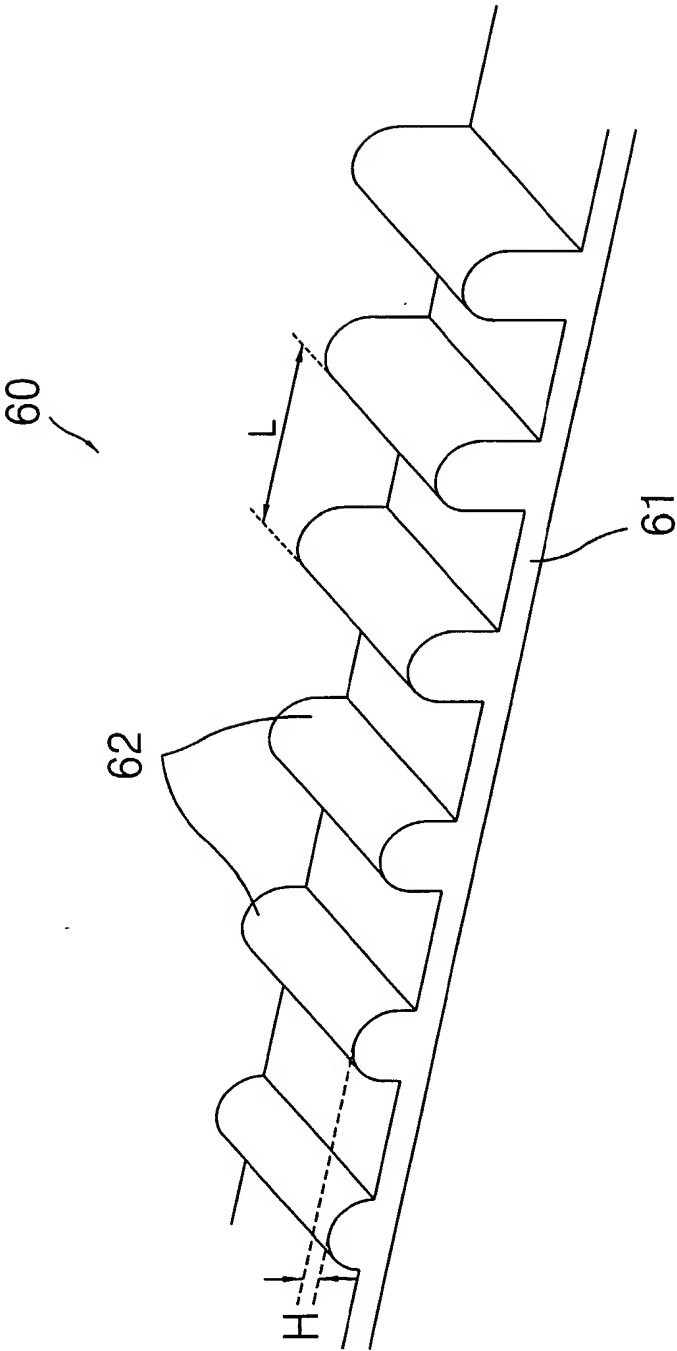


FIG.6

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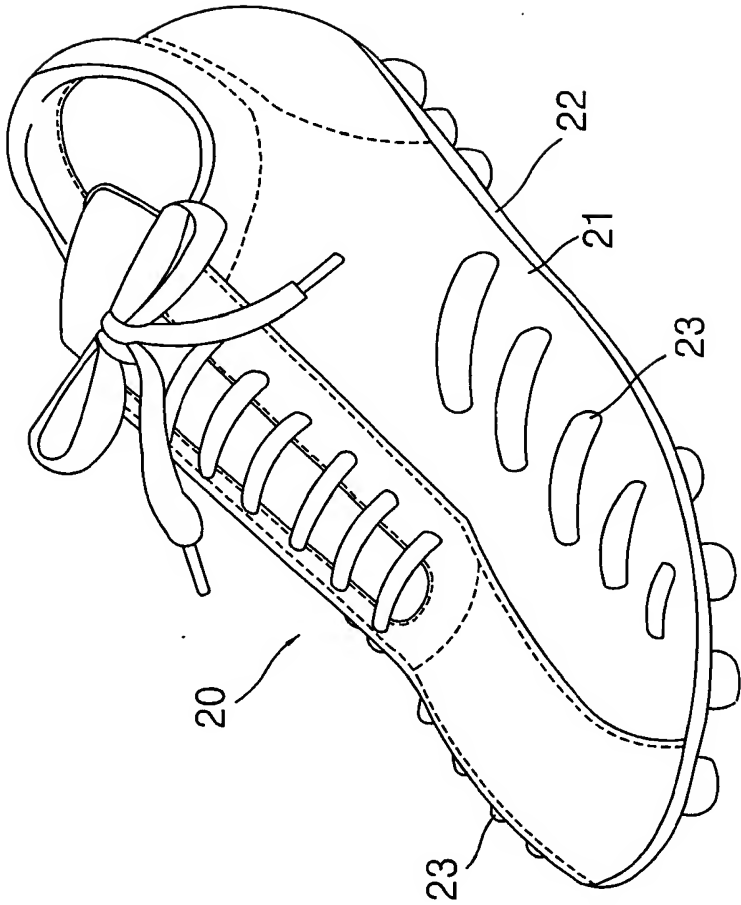


FIG. 7

# INTERNATIONAL SEARCH REPORT

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> <b>IPC7 A43B 5/02</b> According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC7 A43B 5/02, 5/00, 23/02, 1/02 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Patents and applications for inventions since 1975, Korean Utility models and applications for Utility models since 1975 Japanese Utility models and applications for Utility models since 1975 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) NPS, PAJ		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 08-332101 A () 17 Dec. 1996 see the whole document	1-20
A	JP 09-028412 A (ASICS) 4 Feb. 1997 see the whole document	1-20
A	JP 09-140402 A (OKAMOTO) 3 June 1997 see the whole document	1-20
A	US 4,447,971 A (MESSRS) 15 May 1984 see the whole document	1-20
A	KR 95-26355 U () 16 Oct. 1995 see the whole document	1-20
A	KR 96-181 U () 17 Jan. 1996 see the whole document	1-20
A	KR 96-16105 U () 17 June 1996 see the whole document	1-20
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